REMARKS/ARGUMENTS

I. Introduction:

Claims 1 and 30 are amended herein. Claims 1-10, 12-21, and 23-34 are currently pending.

The courteous telephone interview granted applicants' undersigned attorney by Examiner Quan on November 13, 2003 is hereby respectfully acknowledged. As requested by the Examiner, a discussion of the Wendelbo et al. and Sanadi references (as provided during the interview) is set forth below.

II. Claim Rejections Under 35 U.S.C. 112:

For clarification, claim 1 has been amended to remove the term "nonporous rigid". Claim 1, as amended, and claims 2-10, 12-21, 23-29, and 34 depending either directly or indirectly therefrom, are believed to comply with the requirements of 35 U.S.C. 112.

III. Claim Rejections Under 35 U.S.C. 102:

Claim 1-10, 12, 13, 19, 20, 26-29, and 34 stand rejected under 35 U.S.C. 102(b) as being anticipated by PCT Application No. WO 98/36826 (Wendelbo et al.).

Claim 1 is directed to an apparatus for use in parallel reaction of materials. The apparatus includes a base having a plurality of reaction wells and a sealing device positioned over the reaction wells for individually sealing each of the reaction wells. One of the sealing device and the base has chamfered ridges extending generally around a periphery of the reaction wells and the other of the sealing device and base has a metal contact surface formed from a material softer than a material of the chamfered ridges to create a knife-edge seal between the sealing device and the base when the sealing device and the base are forced into contact with one another.

Wendelbo et al. disclose a multiautoclave for combinatorial synthesis of zeolites and other materials. The multiautoclave includes a block having a plurality of openings extending therethrough and lined with an inert material (e.g., polymer material). The block may be formed from stainless steel, aluminum, titanium, Teflon, polypropylene, or PEEK. The block typically includes 10 to 10,000 openings, each opening forming a chamber having a volume of .001 ml. to 10 ml. (see Fig. 2). As shown in the exploded view of Fig. 1, the device includes a bottom plate 7a and a top plate 7b disposed on opposite sides of the block 2. Wendelbo et al. disclose two embodiments. The first embodiment has two different configurations, one shown in Fig. 1 and the other shown in Fig. 3. Each configuration includes sealing devices (balls 4 in Fig. 1 and disks 5 in Fig. 3) which are interposed between the plates 7a, 7b and the block 2 to seal the chambers when the bottom and top plate are pressed against the block. The balls 4 may be made from Teflon or other suitable material (e.g., steel, PEEK, Nylon, or glass). As shown in Fig. 1, a thin polymer sheet 3a, 3b is interposed between the block 2 and the sealing devices for the first configuration. Thus, the balls of Fig. 1 do not have direct contact with the central block. The septa 5 of Fig. 3 are made from an elastomer, preferably Viton (page 7, lines 18-19). As the Examiner notes, the balls or septa may be fastened directly on the bottom and top plates or on separate polymer films or a thin metal plate in such a way that they may be put in place and removed in a simple manner (page 7, lines 23-25). If a metal plate is used, the balls or septa are attached directly thereto (instead of being attached to the top and bottom plates 7a, 7b). It should be noted that the metal plate is provided to hold the sealing devices in place and is <u>not</u> involved with the sealing since it is interposed between the top or bottom plate and the sealing device. The first embodiment of Wendelbo et al. does not show chamfered ridges, a metal contact surface, or a knife-edge seal created between a sealing device and a base.

Figs. 5a and 5b show a second embodiment in which the sealing balls or disks are replaced with a polymer sheet (thin polymer film) 3a, 3b and the block 2 is machined so that sharp edges extend outwardly from the periphery of each opening. The sharp edges cut into the polymer sheet to prevent leakage between adjacent chambers. As noted on page 7, cols. 32-35, "The advantage of this design is that one smooth polymer sheet can be used as a lid or sealing device for all the chambers because the sharp protrusions cut into the polymer sheat". As shown in Fig. 5b, the sharp edges extend into the polymer sheet and do not contact the bottom and top

plates 7a, 7b. The second embodiment of Wendelbo et al. does not show a metal contact surface. The sealing device of Wendelbo et al. is a thin polymer sheet, such as a gasket material, that provides a surface for the sharp edges to cut into. As shown in Fig. 5b, the sharp edges easily cut deeply into the polymer sheet which does not provide a metal contact surface.

Applicants' invention is particularly advantageous in that it provides for improved sealing and isolation of an array of adjacent reactor vessels at higher temperature and pressures than could be achieved with the prior art devices, including the devices described in Wendelbo et al.

Accordingly, claim 1 is submitted as not anticipated by Wendelbo et al.

Claims 2-10, 12-21, 23-29 and new claim 34, depending either directly or indirectly from claim 1, are submitted as patentable for the same reasons as claim 1.

Claims 30, 33, and 34 stand rejected under 35 U.S.C. 102(b) as being unpatentable over U.S. Patent No. 5,741,463 (Sanadi).

Claim 30 is directed to a parallel batch reactor comprising a base having a plurality of openings, a plurality of vessels sized for being received in the openings within the base, and a sealing device formed from a rigid material softer than the material of the vessels. The vessels each include a chamfered periphery edge configured to create a knife-edge seal between the sealing device and the vessels.

Sanadi discloses an apparatus for preventing cross-contamination of multi-well test plates. The apparatus includes a tray having a plurality of tubes. As shown in Fig. 8A, tube 114 may be sealed by a cap 123. The tubes 114 include top portions 119 having flared necks 120. The cap assembly 122 includes caps 123 and vertical walls 124 which project down vertically between the caps from a lower surface of the cap assembly. When lid 126 is clamped in place, the walls 128 of caps 123 mate with flared necks 120 to seal tubes 114 with a friction fit therebetween (col. 11, lines 23-26). This configuration allows sealing to be achieved with very little pressure (col. 11, lines 28-31). The method of sealing does not require tight fitting caps. Thus, removal of a clamp only results in the cap assembly slightly rising (col. 11, lines 31-33). Upon removal of the clamp, walls 128 of the caps 123 will remain in place mating with flared necks 120 of tubes 114 (col. 11, lines 36-38).

Sanadi does not teach a knife-edge seal between a sealing device and base as required by claim 30. The cap and tubes of Sanadi are configured simply to provide a friction fit between two mating surfaces (wall of cap and flared neck of tube). Furthermore, the integration of knife-edge sealing with the individual vessels offers several advantages over the art of record, including for example, the interchangeability of single vessels (e.g., rather than the entire array of vessels), for example if the need arises to replace one of the vessels.

Accordingly, claim 30 is submitted as not anticipated by Sanadi.

Claims 31-33, depending directly from claim 30, are submitted as patentable for the reasons discussed above with respect to claim 30.

IV. Claim Rejections Under 35 U.S.C. 103:

Claims 1-10, 12, 13, 19, 20, 26-29, and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wendelbo et al. in view of U.S. Patent No. 5,484,731 (Stevens) or U.S. Patent No. 5,961,926 (Kolb et al.) and U.S. Patent No. 6,274,088 (Burbaum et al.).

It is respectfully submitted, that Stevens, Kolb et al., or Burbaum et al., alone or in combination, do not overcome the deficiencies of the primary reference, as discussed above. Burbaum et al. is cited by the Examiner as showing a sealing device smaller in dimension than a base and cover. The Examiner cites Stevens and Kolb et al. as disclosing a chamfered ridge along a periphery of a well.

Burbaum et al. disclose an apparatus for high throughput plate to plate (or membrane) transfer. A membrane 130 is shown clamped between plates 140, 150 (Fig. 1).

Stevens discloses a multiwell in-vitro fertilization plate comprising a base having a plurality of open wells and a removable lid for covering the base. The plate is preferably injection molded from a plastic resin. The inside surface of the lid and the base top surface each have elements which interact when the lid is in the closed position to form a tortuous path for gas interchange between the wells and the outside environment to prevent microbial contamination of the wells when the lid is closed. Wells 16 include raised lips 34 which project above a top surface of the base (Fig. 4). The lid 20 includes a plurality of raised rings 38 which are

positioned and sized when the lid is in its closed position to form a concentric barrier 40 outside lips 34 on the wells. Barrier 40 provides a tortuous path for gas interchange with wells and retains condensation formed on the lid from the contents of the wells. Stevens does not show or suggest a sealing device having a chamfered ridge. The ridges of the lid and raised lips of the base simply define a barrier which provides a tortuous path for gas interchange. There is no seal created between the ridges and lips.

Kolb et al. disclose a microplate assembly for use in analyzing samples captured on a filter medium. The assembly includes a carrier plate 12, holding tray 14, collimator 18, and cover film 20 (Fig. 2). The collimator includes a plurality of wells 48 with upper rims 49 extending around the periphery of each well (Fig. 3). The rims help to minimize crosstalk between the wells. The cover film 20 adheres to the upper rims 49. Kolb et al. do not show or suggest chamfered ridges which create a knife-edge seal.

Claims 1, 3, 6-8, 12, 13, 15, 17, 19-21, 26, 28, and 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sanadi in view of Wendelbo et al. As discussed above, neither Wendelbo et al. nor Sanadi, alone in combination, show or suggest the claimed invention.

Claims 1, 23, and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sanadi in view of U.S. Patent No. 5,035,866 (Wannlund) and Wendelbo et al.

Wannlund discloses a luminescence reaction test apparatus for performing and measuring chemical reactions. The apparatus includes a plurality of reaction wells, each having two reaction cups, arranged one above the other. The upper cups have orifices formed in the bottoms so that liquid can be mixed and reacted in the upper cups and then transferred to the lower cup and mixed with additional reactants. The cups have sides that taper inwardly from the top to the bottom of the cup to simply allow the upper reaction cups to be nested within the lower reaction cups during assembly of the apparatus (Figs. 2 and 3). Wannlund does not show or suggest a sealing device and base, one having chamfered ridges extending around a periphery and the other having a contact surface to create a knife-edge seal between the sealing device and base.

Accordingly, claims 1 and 30, and the claims depending therefrom, are submitted as patentable over the art of record.

V. Conclusion:

In view of the foregoing, reconsideration and allowance of claims 1-10, 12-21, and 23-34 are respectfully requested. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 446-8695.

Respectfully submitted,

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